

Trends & Issues in Library Technology

IFLA IT Section Newsletter

January 2018

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From the Incoming Editor

“ HAPPY NEW YEAR!

As an incoming newsletter editor, I am thrilled to be part of IFLA's Information Technology Section!

A little bit about myself. I am a medical librarian at Mount Sinai Hospital in Toronto, Canada, one of the most culture-rich communities in the world. In my visit to Poland last year, I thought IFLA to be akin to my own community, yet boasts a wide array of diversity in many other aspects.

It is my hope to facilitate discussion of technological applications in our workplaces to enhance access to information in our communities. ■■

Michelle Ryu



Welcome to the first 2018 issue of TILT!

Featured are usability testing, benefits of LibGuides and a historical recount of data processing in Germany.

IFLA WLIC 2018 is coming in August, and the IT Section is in the midst of planning a main and some joint sessions. Please feel free to contact any of your Section officers for more information, and to join us at the IT Section meetings.

I want to thank our contributors for sharing their news, and encourage all members (and non-members) to submit articles.

Happy reading!

Joan Wee
Editor



Usability Testing & Content Auditing your Library Website

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I had the role of User Experience (UX) librarian for about 17 months in my previous employment at Nanyang Technological University, Singapore. This was a newly created position. One of the major projects I was involved in was the revamp of the library's website.

Like most organizations, a Committee for the website revamp was formed comprising the Deputy University Librarian, Deputy Director of Library Technology & Systems, Library Webmaster, and the new UX Librarian (myself). Our approach was to have a small project team so we could move changes along faster.

This is when the rubber meets the road: incorporating everything that I have learned about UX methods and techniques with our environment and context.

Something I learnt during this website revamp project: we can and should aspire to be as user-centered as we can; however at times, we need to be strategic and present what we want our users to see.

The library website is a growing organism that needs management

Our initial focus was on the landing page, and the 'second-level' pages. These were the secondary landing pages after a user clicks into one of the six categories listed on the landing page. Then we discovered that because the library website is like an octopus with many tentacles, we had to do a content audit of over 200 pages – more on that later.

Instead of going out to find out what was not user-friendly about the library website at that point (circa May 2016), we started doing wireframes and mockups of how we wanted the website-landing page to look like. UX purists would argue that this was not usability testing; I was just excited to get some opinions from our students.

Every usability testing needs a script

With a finalized paper mock-up of the landing page of the library website, I completed the script of my first ever usability testing. We adapted from the script shared by Steve Krug on his website.

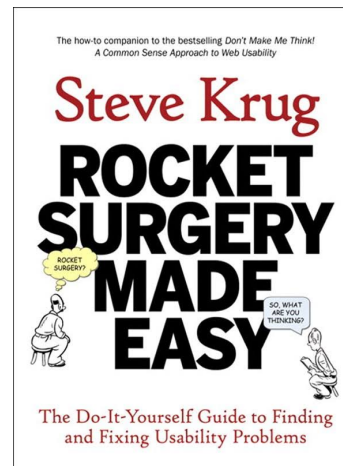


Fig 1: *Steve Krug's Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems*

You can [download the script](#) at his website. As long as you have clarity on what you would like to achieve in this short – under 30 minutes – session with your participant, you are on the right track.

To improve the script, rehearse it with your colleagues and test users – and edit accordingly. Communicating what needs to be achieved to your participant is ultimately more important than the script itself. After your fifth participant, everything usually becomes clockwork.

Library websites need user testing

There were two segments to our diluted version of usability testing. The first part involved "X/O participatory design", borrowed from the [University of Michigan's work](#) on their library website. The 'X' meant asking users to cross out what they did not find useful on that paper representation of our new library website. The 'O' meant circling what they felt was useful. We also encouraged the users to use small strips of sticky notes for writing what they felt should be added to this paper website.

This quick exercise with ten undergraduate students allowed us to identify what our users felt were useful, including misunderstandings of what a particular link would have brought them to. The worry with a paper representation was that users would not know what was behind a link. On hindsight, it was an excellent exercise in finding out whether our users understood what we wanted to communicate.

The second segment was an elaboration of the first segment. We crafted six tasks for our users to complete.

Task	Description
A	<p>You are a student, and you have to call for a project meeting with four of your group mates. There will be plenty of discussion, and you prefer a large screen, which everyone can refer to during the meeting.</p> <p>Book a facility space at your library that can hold this meeting.</p>
B	<p>You need a particular book title for your research. You have done your search and are certain our Library does not have a copy of the book.</p> <p>Put in a request to the Library for the book you need.</p>
C	<p>During a lecture, your professor mentioned the library has useful guides that list recommended databases for different disciplines. These databases will help you find good quality articles for your upcoming assignment.</p> <p>Find these guides.</p>
D	<p>You have tried Google and OneSearch* and the major business databases, but you are having a hard time finding statistics on small businesses in Singapore.</p> <p>Get help from a librarian.</p>
E	<p>You have borrowed some books, which are due soon. You have not finished reading them and would like to have them for a longer period.</p> <p>Renew your books online.</p>
F	<p>You are working on a research project and require many books, however, you do not know how many you can borrow and for how long.</p> <p>Look for the required information.</p>
<p>These scenarios reflected the areas of our website, which we felt were used heavily, or we wanted our users to find easily.</p> <p>* OneSearch refers to our Library's discovery search box located on the website.</p>	

First, we read out word-for-word what the tasks were, and presented a printout of what was read, so that users could refer to it anytime. This is crucial for keeping them focused on their given tasks.

Drawing from what a real usability testing would entail, we also requested the users think aloud as they went along with the tasks. The 'think aloud' process is extremely valuable for us to successfully extract the thoughts of the participants. To better understand what thinking aloud entails, Steve Krug has also uploaded [a video](#) demonstrating this thinking aloud process. I strongly recommend you watch this more than once.

Because we only had the paper representation of our library website at this point, we asked that they affix a tiny colored dot sticker to indicate where they would click. We informed our participants upfront that they should limit their 'clicks' to the paper representation, and not to use our Library's search box for the tasks.



Fig 2: Examples of the completed activity sheet by one of the users; the circles drawn came from the "X/O participatory design" segment. The green dot stickers indicated where the user 'clicked' after understanding each scenario – the letter next to each dot corresponded with a specific task.

The results from this first usability testing informed us about what we had done right, and what could be improved upon.

Save your user’s time with a content audit

This was the least attractive part of the library’s website UX project. It involved collating an exhaustive list of web pages our Library website had – over 200 web pages – and assessing each and every one.

Our challenge was not about rating the web pages. We used a simplified version of [a rubric developed by Michael Schofield](#). Our real challenge was communicating to my colleagues who were responsible for these web pages.

One of the departments in our Library was responsible for over 60 web pages! They were stressed out by the timeline of the project, as well as their heavy workload in this project. We had to persuade and assure them that this was necessary and beneficial to their work – users would be better able to find information at the point of need, reducing the number of ‘standard’ enquiries they receive, such as borrowing privileges. We also reduced the number of webpages from over 200 to about 80 webpages by removing or merging unnecessary or repetitive content.

I felt that one of the best decisions we made for this project was to hire a student assistant who had some copywriting experience. More importantly, he was interested in doing copywriting and editing work over his summer break. Besides providing perspective as an actual user of our library, he looked at the content of every single page of our Library website. As members of the website revamp committee, we worked with him to maintain a consistent style and structure for our web pages, based on how we envisioned the content to be.

Our student copywriter communicated with the stakeholders, offered suggestions on shortening the text and style of the language. Our colleagues were often thankful for his assistance, and found him as a credible voice – because he was our user, and not a librarian in a website revamp committee! When he mentioned something didn’t make sense or the amount

of library jargon in it (think interlibrary loan, intra-library transfer, document delivery, archives, closed stacks, etc.), we nodded in acceptance. We were fortunate to have such an excellent student assistant in this project.

Many of our users (even fellow librarians) are searching on Google for a particular web page on our Library website. Jakob Nielsen (from the famed Nielsen Norman Group and a leader in UX) concluded that “users spend most of their time on other sites” – this is encapsulated in what is known as [Jakob’s Law of Internet User Experience](#). We need to assume that library websites are no exception to this, and users do not stay on our web pages for long.

In the spirit of A/B testing, we also had two almost identical paper representations of the revamped library website. The only difference was in the middle section of the website with the six color boxes. We wanted to test our language and what it communicated: we used nouns for one and verbs for the other. For example, one box was described as ‘Spaces & Equipment’; the other was ‘Book spaces or equipment’.







A	B
 Borrow & Request	 Borrow or request materials
 Spaces & Equipment	 Book spaces or equipment
 Events & Workshops	 Attend events or workshops
Use of nouns only	Use of verbs together with nouns

Fig 3: A/B testing the middle section of the mockup website with minor variations in the language used for the links (which also served as a caption for the images

Library websites require more user testing

For the second round of usability testing, again, we did not follow conventional UX best practices because it was done after we had revamped the library website. It was still relevant because we were going to keep to the same six tasks, with the users completing it on the actual website.

We got participants to install a – a browser plugin – on their personal computers so we could receive a video of the screen recording. Because it was conducted remotely without supervision, users could potentially go off-track during the session, and we had a lot less control over the process. However, it meant they were using their own computers, with their own browsers, in a ‘natural’ environment.

Recruiting participants was significantly more difficult this time as we had to persuade them to complete it at their own time (recordings showed they were often past midnight) and having to install a plug in that people were uncomfortable with – a screen recorder.

There was much excitement after the users completed our usability sessions. Unfortunately, the hard work was just right ahead – transcribing the recordings into text. There are suggestions from some that there is no need to transcribe completely, but just take notes while listening. I found having the full transcription valuable, because I could quote them and with periodic time markers, I could jump to a particular section after searching for the word/phrase. It can be an enormous undertaking – it usually takes about 10 times as much time to transcribe a minute of recording. Get as much help, from student assistants to colleagues, as you can. It can be helpful too for your own learning if you work on transcribing the first few times.

With screen recordings, the results are richer in terms of context and activity. We found it more difficult to present a snapshot or summary of the findings, versus results from the first round of paper prototyping and audio recordings. Eventually, I created a highlights reel that had clips of different users performing a particular task.

You would want to have a written report and/or presentation summarizing the findings from the usability sessions, and present a list of top usability problems – just one to three points that require follow-up action.

Dealing with what your users are experiencing

In our case, we discovered something tangential to our Library website, which we might have overlooked – the University website has centralized FAQ section. Users had relied on it as they went about the tasks, and there were

broken links and outdated information on the FAQ answers.

We also needed to further cull library jargon from our web pages, starting with our enquiry and feedback form. The usability sessions demonstrated that users did not know which option to pick, or had picked the wrong option, even after finding the contact us form.

Lastly, there was a bigger task that was outside of the scope of our website project – building a consistent look and feel across the different “library platforms”. By platforms, I mean our library website, our library guides, our facilities booking system, as well as our blog platform. Our usability participants were getting lost in these different platforms, and because they looked quite distinct from each other. They were unable to navigate easily from one to another.

Keeping your web address short and informative

It is crucial to ensure that your web address be as short as possible, while being informative. I am specifically referring to the portion after www.mylibrary.edu or www.mylibrary.org. Is yours a complicated “/library/borrow/lending/privileges-basic-table/”? That needs to be fixed immediately after your content audit – once you know what the content of a web page will contain. For example, you have a web page for your opening hours. Do not hide it behind sub-folders and name it “mylibrary.org / Pages / ASD / OpHrs.aspx” – reduce it to “mylibrary.org / opening-hours”. Always go with lowercase, and use hyphens to replace the space in words. Also, please do not use library jargon like ‘ILL’ for a web page on interlibrary loan – resist the temptation! This will improve your discoverability (i.e. search engine optimization); as well as provide a signal to users as to what exactly the page is about.

Personally, this was also the rainbow at the end of the tedious content audit exercise.

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The Benefits of a LibGuide

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Introduction

Libraries are increasingly expected to create and share information in a timely and cost-efficient manner due to budget and staffing cuts. The traditional way of marketing library services involves creating brochures that may not be the most economical or environmentally friendly method. As user demographic changes and as technology evolves, libraries are expected to provide information at time of need.

LibGuides is a content management system (CMS) from Springshare (2017) and is being used by more than 5,700 libraries in 80 countries. Rodriguez (2015) reported that 4,800 libraries are using LibGuides which means a 19% increase in a span of two years. LibGuides has become a popular platform to promote library resources as well as share the subject expertise of the liaising librarians. The Nazarbayev University Library has been using LibGuides version 2 for about a year. Currently, it has more than fifty published guides that are categorized by general purpose, school, course guide and topic guide.

Benefits

The University of Pittsburg (2017) reported a number of benefits of using LibGuides to complement students' learning. Since the guides are organized in a subject-specific manner and available online, students can access the materials at their own pace. Another advantage to using LibGuides is the ability to update the content almost immediately as information changes.

Subject Librarians as Owners of the Guides

At Nazarbayev University Library, a subject librarian is assigned to each school or center to support with their information needs. Subject librarians are responsible for creating, maintaining and promoting their own guides. Each librarian works independently and thinks of a topic related to their subject specialization. Librarians are instructed to follow an existing guideline or template. For example, librarians are required to upload a photo in their profiles to help patrons be familiarized with their librarians.

In addition, librarians receive email reminders on how to curate and update assets. An asset is a "content object" which can be added to enhance a guide, such as a hyperlink, media including photograph, document, file, book from a catalog or an RSS feed. Assets should be managed carefully as deleting an asset may affect guides that contain the same asset. Subject librarians should also be cautious with tagging metadata, adding images and customizing design.

Creating your first guide is a fun experience. Before your guide is published, it is important to make sure that your content is user-friendly and accessible. Key checkpoints would include closed captioning for your videos, functional links, clear and informative headings and text, including avoiding the use of jargon. Martinez (2017) from O'Neill Library, Boston College in Massachusetts, has prepared an excellent introduction to LibGuides. You may visit his [LibGuide](#) for more information.

The Nazarbayev University Library portal is also powered through LibGuides. Information such as Ask a Librarian, subject librarians, library welcome and services for undergraduate students topped the list of most viewed guides from January to November 2017. However, they are only produced as part of the library's operational guide under the LibGuide platform. The topic on citation styles and tools proved to be one of the most viewed guides, followed by a guide on Google and Google Scholar Advanced Search.

The Nazarbayev University Library is still in its initial phase of introducing the LibGuides to all its patrons. There are still a lot of things to offer and our librarians are working hard to promote these LibGuides. We continue to encourage all patrons to suggest or recommend topics to be developed and shared with the academic community at Nazarbayev University.

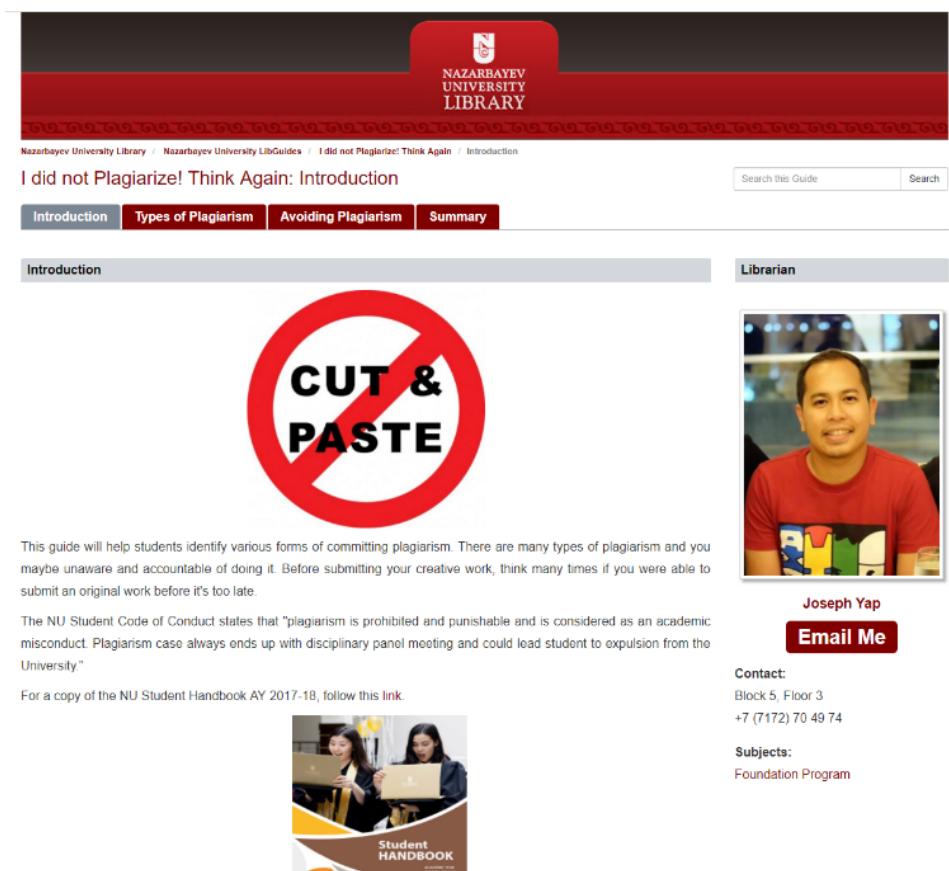


Fig 1: Sample LibGuide

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Chronology of Data Processing

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The pre-electronic time

Just two years before I started my professional education in 1955, the CEO of IBM guessed that the world's need for computers would perhaps be five computers! I am convinced that none of my teachers at the Free University in Berlin had ever heard the word "computer" nor could they imagine what such a big but silly thing could be used for. No librarian could have any knowledge or expertise in data processing; they all had obtained their library education before World War II.

Although in the United States the use of punched cards – for circulation as well as for cataloguing - was in use since the 1940s, in Germany it was only in the mid-1950s that some libraries started to manage their circulation with punched cards. In 1954, the newly opened central public library in Berlin, the America Memorial Library (Amerika Gedenkbibliothek), adopted the Wayne County Library System in the U.S. The circulation system was labor intensive with no sight of computers. The edge-punched cards had to be "needled" every morning before the library opened by staff including myself during my practicum. However, at that time, this was the state-of-the-art technique and all employees were proud to work in that library.

The beginning of data processing

Changes took place rapidly when computers arrived at universities. University libraries began to think about using computers. Could librarians perhaps consider that automating the circulation system might be easier, because libraries could benefit from using programs developed for banks? Banks, which had implemented computers earlier, required only three numbers to operate: the account, the sum of money and the date. Similarly, libraries needed only the call number, the user number and the book check out date and due date. But this was only circulation. Cataloguing was regarded throughout the profession for being too complicated for automation. Wasn't it true that librarians needed three years of education to learn all the rules? Nearly all academic libraries in Germany followed the 'Prussian Instructions' of 1899 as cataloguing rules with sophisticated grammatical regulations for headings. How could a machine ever keep up with this task?

Additionally, there were no data formats for input and output of programs; data had to be manually punched onto cards or paper tapes, or big magnetic tapes fed into a computer.

In 1961, the Chair of IFLA's Cataloguing Section, Eva Verona, published a 'Statement of Principles' which was the first standard that allowed computers to process cataloguing information. It initiated a worldwide effort of developing national rules according to these principles. The efforts to create new cataloguing rules and data formats based on the statement began in Germany as well.

An early user of data processing in Germany was the Deutsche Bibliothek, our national library in the Federal Republic of Germany (BRD). In 1966 this library presented the first monthly booklet of the national bibliography (Deutsche Bibliographie) produced by electronic devices. Wow! Librarians rubbed their eyes. I myself was very enthusiastic. While I was a solo librarian in a department library of the University of Arts in Berlin, I had a mathematical/science high school exam (Abitur in 1955) and it was clear that I became passionate about electronic data processing and looking for a change in my career. I started to learn programming through evening courses and in 1971, I had not only a certificate in FORTRAN programming but also became capable of punching program data onto punched cards. Remember, there were no monitor screens then.

The chaotic times

During the end of the 1960s, the University of Konstanz produced their first computer-based library catalogue. The production took 177 hours and during this time no other program could be executed on this computer. The universities in Bochum and Regensburg also made great efforts to meet this new challenge. They developed the first simple data formats. By then the Prussian Instructions were obsolete; however, new rules were not ready for use. The Statement of Principles and the new published ISBD formed the backbone of the new cataloguing programs.

Those were the wild times! We had no standardized rules, data formats or devices for input or output or character set, and nobody had any experience. But everyone was trying something! In many cases, it became clear that it was more successful for librarians to think like software engineers, than for software engineers to think like librarians.

The Institute for Library Techniques

In 1969, the need for standards and research in library automation was the primary reason for establishing the Institute for Library Techniques, Arbeitsstelle für Bibliothekstechnik (ABT), in Berlin. I came in contact with this institution in 1971, just when I had finished my programming course as FORTRAN programmer and – luckily – all programs in that institution were written in FORTRAN. I got the job of developing a data format for cataloguing together with a very skilled programmer at ABT.

In the same year a group of German librarians had visited Ohio College Library Center (now OCLC), including a librarian from ABT. The librarian came back full of ideas and resolution to implement a similar system in Germany. The idea of shared cataloguing began to infiltrate the library community. In the German academic libraries, however, the idea of cooperation was not popular. They were not accustomed to using records from other libraries, thinking only their records had sufficient quality. But the advantage of using shared records was obvious, since a library could save time and manpower by adding their holding information to an existing system. After a failed effort to establish a shared cataloguing system for monographs for academic libraries in Berlin, the Prussian State Library in Berlin proposed to the ABT to create a unified serials cataloguing, because it was difficult to keep their two printed catalogues for serials (German and other serials) up-to-date.

The German Serials Database

The ABT agreed to take on this project and we created a customized data format for serials and a program for producing bibliographic entries. We had to face the problems concerning the automation of serials cataloguing. For example, bibliographic records for serials (and holdings records also) were frequently changing, because of splits and mergers of the serials. Fortunately, our talented software engineer developed a database, which was probably one of the most advanced in the world with a data format that was much more sophisticated than MARC. We were able to

link records of different files by ID number and not by heading - which would have caused many errors. We produced an entry consisting of records from three files: authority, bibliographic information and holdings information. Essentially, we needed authority files to make shared cataloguing a success. There was a tremendous need for an authority file for corporate bodies, because handling of such data was unknown in Germany as the Prussian Instructions did not know them. This was our first project and the start to shared cataloguing. The two big university libraries in Berlin (Free University and Technical University) joined the project, followed by the university library in Saarbrücken. The German Serials Database = Zeitschriftendatenbank (ZDB) was born. Despite many difficulties in 1973, we produced the first printed serials catalogues for our participating libraries.

The interaction between all components was great. The data format regulated the rules and vice versa. The authority files simplified cataloguing and their existence created the need for integrated library systems. A standardized character set was developed by our German standardization organization DIN. I was involved in that work, which later became an ISO Standard.

The ABT did not have its own computer until 1974. Our library applied to the German Research Foundation (DFG) to finance a computer with 456-Kilobyte storage. The DFG had assumed this machine would be far too big, although we had already about 100,000 records. The project grew rapidly as more libraries from all parts of Western Germany joined our initiative. In 1975, the ABT succeeded in acquiring its own computer, a Siemens Unidata 7.740.

Having no online connection or screens, the communication with so many libraries was difficult. The internet arrived more than 20 years later. The ABT and the participating libraries used the post office to send lots of printouts, other papers and magnetic tapes. The data arrived at the ABT on a multitude of data carriers: punched paper tape, floppy disc, magnetic tape a.s.o. and many data came on paper forms and had to be typed in. They all had to be converted into magnetic disc. It was necessary after some time to implement a bibliographic editorial office to guarantee the quality of the bibliographic records and to set up rules about who is allowed to have writing access to the data. This editorial office became a department of the Prussian State Library, which was our closest partner.

The German Library Institute DBI, national and international cooperation

In 1978, the ABT and another library institution amalgamated to form the German Library Institute DBI which started many projects related to data processing, based on the programs of the ZDB. One of the goals of the DBI was to strengthen international cooperation. The DBI invited many librarians from around the world to share our projects. At the time, the DBI became one of the hotspots for developing new applications in data processing for libraries.

During the same period, new cataloguing rules and national databases were created in Italy, Austria, Eastern Germany and later in France and Switzerland. In 1977, I started to get involved with IFLA, which strengthened in 1986, when I became the chair of my library association in Germany.

In the 1970s, the BRD, the East German DDR and Austria implemented common rules, data formats and character sets. Although the East German government prevented their librarians from communicating with colleagues in the BRD and did not allow their libraries to participate in the ZDB, there was cooperation concerning cataloguing rules. We played off the cushion through colleagues in Austria - considered a neutral country - and was able to communicate progress on cooperative cataloguing activities. We also arranged minimal communication at annual IFLA Congresses.

From 1980 onwards, in several states of the Federal Republic, regional bibliographic utilities set up. These bibliographic utilities were responsible for maintaining a shared catalogue in their region. Although ZDB had become an indispensable tool of serials cataloguing in Germany, cataloguers found having two different data formats difficult to work with, as monograph cataloguing was done regionally, and serials cataloguing was done nationally. Library companies offered integrated library systems and libraries wanted to use them for monographs and serials. Interfaces had to be created. Times became harder for the DBI. But there was also progress. In the 1980s, monitor screens became available. In 1986, ZDB was accessible online by our partnering libraries.

Start of a new challenge

In 1989, the ZDB had become too great to be managed by our small team and DBI acquired a commercial enterprise that offered a powerful integrated library system to run ZDB. I got a new position at the Ibero-American Institute, a research institute with a big library dedicated to literature and culture of Latin America. Although this institute was rather famous, it was old-fashioned as they still used the Prussian Instructions from 1899, had no computers and were producing catalog cards by typewriter. It was clear they had to be modernized and were seeking for a person with expertise. I began to convert the entire organization from doorman to director and, together with an engineering company succeeded in implementing a modern integrated library system. The Internet, personal computers and modern communication had arrived. After four years, the new system was running well. In the following period, I was responsible for maintenance, communication, data security and keeping the system up to date.

In 2000, I retired, but the next day opened a small one-woman company for distribution of library software. I ran this business for 9 years. After I closed it, I began to write my PhD thesis (Dissertation) about the fate of the German Library Institute (which had been closed meanwhile).

The future – may be

What will be the next big thing in library land? Will there be descriptive cataloguing any longer? Expert systems may scan the bibliographic data stored in a chip, integrated in the media and produce bibliographic data. Do we need subject cataloguing in future when all media are accessible full-text online, web crawlers can search big data and not only retrieve media, but are capable of analyzing their context and meaning? Users will no longer need to switch on a computer or smartphone, since search results could appear on eye-glasses, or display on clothing and other wearable devices. Your personal system will know what you want and what you need even before you search. Impossible? No, companies have libraries that offer SDI, Selective Dissemination of Information. A librarian is necessary to perform this. Perhaps the librarian will be replaced by artificial intelligence. What is the role of libraries in this environment? IFLA should pick up these questions. I am a big fan of IFLA and hope to be able to work on some of these topics in the IFLA IT Section. ■■



The Information Technology (IT) Section promotes and advances the application of information and computing technologies to library and information services in all societies, through activities related to best practices and standards, education and training, research, and the marketplace. The scope covers IT for creation, organization, storage, maintenance, access, retrieval, and transfer of information and documents for all types of libraries and information centers; IT for the operation of libraries and information centers; and, related management and policy issues. Of primary importance are applications of IT for supporting access to and delivery of information. In recent years, the use of technology in libraries has expanded to machine learning and AI, robotics, digital humanities, and data analytics.

The section meets annually at the IFLA Congress; in between congresses, members collaborate with other Sections on programs and workshops. The IT Section is one of the largest in IFLA with over 300 members from nearly 80 countries, all types of libraries, and a range of disciplines. We welcome all members (<http://www.ifla.org/membership>).

The IT Section website (<http://www.ifla.org/it>) has news on activities, minutes, publications, and membership details. The IFLA-IT email list provides a forum for members to exchange ideas and experiences in the use of information and communication technologies in libraries (subscription at <http://infoserv.inist.fr/wwsympa.fcgi/info/ifla-it>).

The Trends & Issues in Library Technology (TILT) newsletter is published twice a year in January and July.

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